A SECOND OPHTHALMOLOGICAL SURVEY OF THE ILLINOIS STATE SCHOOL FOR THE BLIND.

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NOTES, CASES, INSTRUMENTS

A SECOND OPHTHALMOLOGICAL SURVEY OF THE ILLINOIS STATE SCHOOL FOR THE BLIND

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FIRST SURVEY

In April, 1933, a survey was made of all of the children in residence at the Jacksonville School, at the request of the Board of Public Welfare of the State of Illinois.[1] A total number of 238 children was examined, their visual acuity measured, and the history on file at the school noted. In each instance it was determined whether the child should be in a blind class, sight-saving class, or regular school. Special attention was given to the possibility of improving their vision by medical or surgical treatment. It was found that:

The number of children with vision in the better eye of 20/70 or better was 18 or 7.5 percent.

The number of children with vision in the better eye of between 20/70 and 20/200 was 41 or 17.2 percent.

The number of children with vision in the better eye of less than 20/200 was 179 or 75.3 percent.

From this it can be seen that 59 children or 24.7 percent were receiving instruction by blind methods when they really belonged in sighted classes. In addition, 64 children or 26.9 percent offered some possibility of having their vision improved by appropriate treatment.

SECOND SURVEY

A second survey was made in the same manner in October, 1935. At this time there were 224 children in residence.

The number of children with vision in the better eye of 20/70 or better was 7 or 3.1 percent.

The number of children with vision in the better eye of between 20/70 and 20/200 was 39 or 17.4 percent.

The number of children with vision in the better eye of less than 20/200 was 178 or 79.4 percent.

All of the children with vision of 20/200 or better were receiving sight-saving-class instruction.

The appended tables A, B, and C give the details of the differences found in the two surveys. The most striking differences are: 1. The number of patients with vision of 20/70 or better was reduced from 18 to 7. 2. The number of cases of optic atrophy increased from 32 to 63. 3. The number of cases of glaucoma increased from 17 to 35. 4. The number of cases of operable cataract increased from 7 to 15. 5. The number of cases of retinal detachment increased from 0 to 6. 6. The number of cases of trachoma was only 4.

About the same number of surgical operations was advised in each survey, and in only a few instances had operations recommended in the first survey actually been done. It is quite obvious that this situation needs to be remedied, both for the welfare of the children and in fairness to the taxpayers of the state. After a child is in the school it is quite difficult to get the parents to consent to an operation. Of course, a policy might be adopted of discharging any child if the parents declined to permit a recommended operation to be done, but such a policy would cause considerable friction and resentment. The same objective would be reached within a few years if the institution declined to admit any child who might be benefited by surgical treatment until such treatment had been tried.

58 East Washington Street.

[1] An ophthalmological survey of Illinois State School for the Blind. American Journal of Ophthalmology, 1934, v. 17, July, pp. 624-626.

cial importance now that surgical procedures on the vasomotor nerves are in vogue. The ophthalmologist can observe the type of vessels in which these significant changes occur. He can study them under a magnification of 16 times their normal size with the ophthalmoscope, or more than twice that magnification with the Gullstrand binocular ophthalmoscope. To judge by the mechanism of hypertension it would appear that the presence of intermittent spasms would be a great help in differentiating functional from true organic changes in the small arterial branches and thus would be of great prognostic importance.

RENAL NEURORETINOPATHY

Our conception of renal neuroretinopathy has undergone a change. We know that albuminous transudates, hemorrhages and swelling of the nerve head are frequently found in advanced stages of arterial hypertension and that the hypertension encountered in nephritis is probably a result of arteriolar changes brought about by the same toxins which cause the nephritis. The vascular changes in turn are responsible for further kidney damage. Extensive vascular changes of "malignant" hypertension are accompanied by severe kidney damage with albuminuria and eyeground changes identical with those described as "albuminuric neuroretinitis." Acute and chronic nephritis can exist with normal arterial tension and normal eyegrounds. The retinal changes ascribed to the nephritis are not infrequently a result of the accompanying hypertension.

Spastic arterial changes can be accounted for just as easily on the basis of the hypertension as on that of the nephritis.

In five cases of glomerulonephritis in young individuals—the youngest 11 years of age, the oldest 27—all of whom had a hypertension with an average blood pressure of 160/90, spastic arterial changes without exudates or hemorrhages were observed. Albuminuric changes may develop later as the sclerotic arteriolar changes progress.

SUMMARY AND CONCLUSIONS

Spasms of the retinal arteries may be intermittent or continuous. The presence of intermittent spasms facilitates the diagnosis and makes it more certain. Only a segment of an artery or several large branches may be affected. They are an almost constant accompaniment of toxemia of pregnancy and, together with other retinal changes are of great prognostic importance. The ophthalmologist has an opportunity to study, under great magnification, the type of vessel concerned in hypertension. A study of these vessels will help in differentiating the form of hypertension amenable to treatment from that in which treatment is hopeless.

Eyeground changes in nephritis are largely the result of arteriolar disease rather than the nephritis per se.

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TABLE A

Classification according to vision

	1935	1933
Both eyes totally blind	50	49
One eye totally blind	51	43
Best eye has light perception	55	45
Best eye discriminates shadows	9	15
Best eye counts fingers	8	23
Best eye 1/200 to 20/200	56	47
Best eye 20/200 to 20/70	39	41
Best eye 20/70 to 20/30	6	13
Best eye 20/30 or better	1	5

TABLE B

Classification according to disease

	1935	1933
Staphyloma	16	10
Optic atrophy		
Meningitis	14	2
Hereditary	2	1
Undetermined	29	29
Oxycephaly	2	0
Head injury	10	0
Brain tumor	6	0
Accidents		
Perforating injuries	7	10
Sympathetic ophthalmia	13	9
Glaucoma		
Primary	22	3
Secondary	13	14
Cataracts operable but not operated on	15	7
Cataract	54	34
Cataract with microphthalmos	6	11
Ectopia lentis	10	0
Microphthalmos	8	9
Macular coloboma	7	0
Choroiditis	13	6
Iritis	2	0
Corneal opacity	38	21
Interstitial keratitis	6	8
Phthisis bulbi	37	14
Enucleated both eyeballs	8	10
Cerebral blindness	2	3
Retinitis pigmentosa	8	7
Conical cornea	3	2
Retinitis proliferans and vitreous hemorrhage	2	2
Retinal detachment	6	0
Retinal degeneration	6	8
Xerosis of cornea	2	1
Definitely due to ophthalmia neonatorum	22	27
Kerato-iritis	2	0
Myopia	15	12
Hyperopia	8	5
Albinism	16	5
Trachoma	4	2
Aniridia	4	2
Cryptophthalmos	1	0
Metastatic endophthalmitis	14	0
Anophthalmos	1	0
Retinoblastoma, bilateral	1	0
Congenital nystagmus	2	0
Totals	457	274

The discrepancy between the number of diagnoses and the number of patients is accounted for by the fact that in many instances there was more than one pathological condition present.

TABLE C

Summary of treatment advised

	1935	1933
Trephining	1	3
Iridectomy	15	14
Iridectomy and lens extraction	4	4
Lens extraction	4	0
Enucleation	4	4
Capsulotomy	0	1
Needling	31	34
Iridotomy	1	1
Diathermy peritomy	0	1
Chalazion removal	0	1
Stripping cornea and graft	2	1
Iridencleisis	4	0
Excision of staphyloma	2	0
Corneal transplant	2	0
Evisceration	1	0
	71	64
Refraction	40	69
Telescopic lenses	7	11
Contact glass	0	1
	47	81

PANOPHTHALMITIS FROM AN ENCAPSULATED ORBITAL ABSCESS

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On May 1, 1936, J. L., aged 60 years, came to the office complaining of pain and inflammation of the right eye. He stated that 17 years ago the eye had been injured by a piece of metal. This resulted in partial loss of vision for a period of five years. An ulcer then developed, following which vision was lost and the patient noticed that this eye remained much more prominent than the left eye. Over a period of years the swelling increased, but there was no pain, and he could not open the lids. A week prior to May 1st, he noticed pain, with inflammation and discharge.

On examination, the lids were slightly edematous, with complete ptosis of

the upper lid, which was greatly stretched, measuring 2¾ inches across. The orbit was filled with a mass, the size of a small peach, the whole being barely covered with the hand. On raising the upper lid, only a mass of deeply engorged conjunctiva could be seen. Where the cornea should have been were two small abscesses. The doughy consistency, lack of severe pain, and history made the diagnosis uncertain.

An evisceration was decided upon and an incision was made into one of

Fig. 1 (Glover). Panophthalmitis from an encapsulated orbital abscess.

the small abscesses, following which pus shot nearly two feet into the air. The lens was present but the vitreous was a mass of pus. A wet dressing was applied and the patient sent back to bed. On the next day, he stated there was no pain whatever. Wet dressings were continued and the eye watched for a week During this period, the swelling subsided by about a third, but pus continued to drain from the globe, which was unusual, for no cause could be found, the eviscerated globe being apparently clean. The photograph shows the marked enlargement still present at the end of a week.

As the leucocyte count was 12,000 and no elevation of temperature was present beyond half a degree at any time, it was deemed advisable to remove the globe. This was easily dissected until the temporal side was reached, when on attempting to sever the external rectus a mass the size of a hickory nut could be palpated with the scissors. While dissecting this mass pus gushed forth and further dissection proved it to be an encapsulated orbital abscess with walls fully an eighth of an inch thick, closely adherent to the globe and to the fascia on the temporal side. This was removed with the globe. The conjunctiva was sutured and a pressure dressing applied.

The wound healed cleanly at once, with all edema gone in a period of two weeks. The upper lid has shrunken considerably, but complete ptosis is still present, with the skin wrinkling in folds.

Examination of the globe and mass showed a small fistulous tract through the sclera into and through the encapsulating wall. From the history, it would be judged that an orbital abscess had occurred 13 years ago, which had not been evacuated and had become walled off. Some irritant probably stirred up the infection, finally causing a perforation into the globe. Examination of the pus revealed staphylococcus albus. Pus draining through the fistula into the eviscerated globe had greatly reduced the size of the abscess at the time of enucleation.

The long duration, absence of severe pain, low leucocyte count, and lack of fever show how well an immunity can be built up to this type of infection. It made the diagnosis difficult, especially as an inflammatory tumor mass had to be considered.

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